

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 **Claim 1 (original):** A method of manufacturing a
2 semiconductor device for obtaining the semiconductor
3 device divided into individual pieces of semiconductor
4 elements by cutting a semiconductor wafer, the primary
5 component of which is silicon, on the first face of which
6 the plurality of semiconductor elements are formed, by
7 means of plasma dicing, the method of manufacturing the
8 semiconductor device comprising:

9 a step of forming an etching stop layer on the first
10 face side at positions corresponding to cutting lines which
11 are set by dividing the semiconductor wafer into the
12 individual pieces, the etching stop layer containing
13 material, the etching rate of the material by plasma, in
14 which a first plasma generating gas of mixed gas containing
15 fluorine gas is used, being lower than an etching rate of
16 etching silicon by plasma in which the first plasma
17 generating gas is used;

18 a step of attaching a protective sheet, which is
19 capable of being peeled off, onto the first face to form a

20 mask for determining the cutting lines on a second face
21 opposite to the first face;

22 a first plasma dicing step of etching silicon from the
23 second face side by plasma of the first plasma generating
24 gas; and

25 a second plasma dicing step of etching the etching
26 stop layer, which is exposed in the first plasma dicing
27 step, by a second plasma generating gas capable of etching
28 at a higher etching rate than the etching rate of the first
29 plasma generating gas.

1 **Claim 2 (original):** A method of manufacturing a
2 semiconductor device according to claim 1, wherein a ratio
3 of the etching rate of etching silicon by plasma, in which
4 the first plasma generating gas is used, to the etching
5 rate of etching the etching stop layer by plasma, in which
6 the first plasma generating gas is used, is not more than
7 0.6.

1 **Claim 3 (original):** A method of manufacturing a
2 semiconductor device according to claim 1, wherein the
3 etching stop layer contains at least SiO₂, and the second
4 plasma generating gas contains fluorine gas having hydrogen
5 bonding or alternatively contains mixed gas containing

6 fluorine gas.

1 **Claim 4 (original):** A method of manufacturing a
2 semiconductor device according to claim 3, wherein the
3 second plasma generating gas contains mixed gas containing
4 CHF₃ or CF₄+H₂.

1 **Claim 5 (original):** A method of manufacturing a
2 semiconductor device according to claim 1, wherein the
3 etching stop layer contains at least SiN, and the second
4 plasma generating gas is mixed gas containing at least
5 fluorine gas and oxygen.

1 **Claim 6 (original):** A method of manufacturing a
2 semiconductor device according to claim 5, wherein the
3 second plasma generating gas contains mixed gas containing
4 SF₆ and O₂.

1 **Claim 7 (original):** A method of manufacturing a
2 semiconductor device according to claim 1, wherein the
3 etching layer contains at least organic matter, and the
4 second plasma generating gas contains at least oxygen.

1 **Claim 8 (original):** A method of manufacturing a

2 semiconductor device according to claim 1, wherein the
3 etching stop layer contains at least an electric conductor
4 used for the wiring of semiconductor elements.

1 **Claim 9 (original):** A method of manufacturing a
2 semiconductor device according to claim 8, wherein the
3 electric conductor contains at least one of Al, Al-Si and
4 Al-Si-Cu, and the second plasma generating gas contains at
5 least chlorine or chlorine compound gas.

1 **Claim 10 (currently amended):** A cutting device of
2 cutting a semiconductor wafer used for the method of
3 manufacturing a semiconductor device, comprising:

4 a processing chamber of forming a tightly closed
5 space;

6 an electrode having a plane tightly coming into
7 contact with ~~the~~ a protective sheet;

8 a holding means for holding the semiconductor wafer by
9 the electrode under the condition that the protective sheet
10 is tightly contacted with the plane;

11 a pumping means for decompressing the processing
12 chamber;

13 a plasma generating gas supply section of supplying
14 plasma generating gas into the processing chamber; and

15 a high frequency electric power supply section of
16 impressing a high frequency voltage upon the electrode so
17 as to transfer plasma processing gas, which is supplied
18 into the processing chamber, into a state of plasma,
19 wherein the plasma generating gas supply section
20 includes a gas selecting means for selectively supplying
21 the first plasma generating gas used in the first plasma
22 dicing step or the second plasma generating gas for
23 generating plasma capable of etching the etching stop
24 layer, which is exposed by the first plasma dicing step, at
25 a higher etching rate than the etching rate of plasma of
26 the first plasma generating gas.